

**- ENGINEERING, MINING & TECHNOLOGY: ARCHAEOLOGICAL PERSPECTIVES –  
ANTHROPOLOGY 2HH3, Term 1, 2018-19**

**Instructor:** Tristan Carter (Chester New Hall, Room 507)

**Contact:** [stringy@mcmaster.ca](mailto:stringy@mcmaster.ca)

**Office Hours:** Thursdays, 1-2pm, or by appointment

**Lecture Times & Location:** Mondays, 7.00 – 10.00 pm (19.00-22.00) – TSH B128

**No tutorials / no textbook**

### Course Description

This course details the feats of engineering that gave us the pyramids, the million-year history of mining, and how elites rise with new technologies: from the wheel to steel, spanning 3 million years of human activity from our earliest ancestors to the onset of globalisation and industrial societies. In the class we locate the studies of fracture mechanics, quarrying, and smelting within a broader consideration of how engineering and technological innovations came to be, and their impact on past societies.

In discussing these topics we take an approach that melds the subjects' scientific specificities (mechanics and engineering of technologies) with an archaeological approach that not only details the evidence for these technologies' origins (including the analytical methods used to document their past existence).

### Course Objectives

By the end of the course students should have:

- An understanding of the origins and science of the major technologies that changed human history.
- Engaged with key debates that broach the sciences and social sciences and by extent provide key perspectives for anyone aiming for a career in technical development and implementation.
- The ability to problem solve / undertake experimental work under pressure in a group format.
- The ability to work as a team to prepare and present a theoretically informed commentary on academic case studies.
- The ability to work in a team.

<b>WEEK 1</b>	Part I: Introduction to the course
Mon. 10 <sup>th</sup> Sept.	Part II: Technology & temporality: the <i>Three Age System</i> , its logic & application <b>Project I:</b> Stone Age to ??? Age: describing our modern world technologically
<b>WEEK 2</b>	Part I: Lithic technology: Fracture mechanics, origins & significance of stone tools
Mon. 17 <sup>th</sup> Sept.	Part II: Science & stone tools: tribology, microscopy & aDNA to document tool use <b>Project II:</b> An experiment in stone tool use-wear studies
<b>WEEK 3</b>	Part I: Pyro-technology: Origins of fire, significance & how we see it archaeologically
Mon. 24 <sup>th</sup> Sept.	Part II: <b>Film</b> – <i>Fire-Maker: How Humans were Designed to Harness Fire and Transform Our Planet</i> 2016 [(22 minutes)] <b>Project III:</b> The impact of fire on early human societies
<b>WEEK 4</b>	Part I: Food technologies: From spear hunting to industrial farming

Mon. 1 <sup>st</sup> Oct.	Part II: The impact of farming on human societies Part III: <b>Film</b> – <i>Meat Without Knives</i> , 2018 [18 minutes]
<b>WEEK 5</b>	<b>MID-TERM RECESS (no classes)</b>
<b>WEEK 6</b> Mon. 15 <sup>th</sup> Oct.	Part I: Ceramic technologies: From pottery to insulators, their origin & impact Part II: Shamans, feasting and identity politics: The early significance of pottery <b>Project IV:</b> Studying ancient ceramics
<b>WEEK 7</b> Mon. 22 <sup>nd</sup> Oct.	Part I: Metallurgy: Origins, technologies and use in the Old and New Worlds Part II: How metals changed early societies Part III: <b>Film</b> – <i>Black Hephaistos: Exploring Culture &amp; Science in African Iron Working</i> , 1995 [48 minutes]
<b>WEEK 8</b> Mon. 29 <sup>th</sup> Oct.	Part I: <b>MID-TERM EXAM</b> Part II- Mining technologies: Origins, socio-economic organisation & symbolism Part III: Raw material choices: From Mohs' scale to cosmologies
<b>WEEK 9</b> Mon. 5 <sup>th</sup> Nov.	Part I: Transport technologies: The wheel, beasts of burden & the sail Part II: Early globalisation and the rise of god-kings <b>Project V:</b> Boats & modernity / Drinking & driving / Horse domestication
<b>WEEK 10</b> Mon. 12 <sup>th</sup> Nov.	Part I: Communicative technologies: How societies record and communicate Part II: The origins of writing: Where, when and what impact? Part III: <b>Film</b> – <i>Why Are These 32 Symbols Found Written on Caves all Over Europe?</i> 2016 [12 minutes]
<b>WEEK 11</b> Mon. 19 <sup>th</sup> Nov.	Part I: Killing technologies: Spears, swords, catapults, origins, engineering & impact Part II: Warriors & elites: the social significance of inter-personal violence Part III: <b>Film</b> – <i>Samurai Swordmaking</i> , 2013 [27 minutes]
<b>WEEK 12</b> Mon. 26 <sup>th</sup> Nov.	Part I: Building technologies: Pyramids, corbels and arches, oh my! Part II: The social significance of the built environment <b>Project VI:</b> How and why did people build monuments?
<b>WEEK 13</b> Mon. 3 <sup>rd</sup> Dec.	Part I: Technology and identity: Pots and peoples? Part II: Innovation and social change: a review Part III: Final exam review
<b>WEEKS 14-15</b>	
<b>Final Exam</b> – venue, date & time to be set by registrar (between Friday 7 <sup>th</sup> – Thursday 20 <sup>th</sup> December).	

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## Course Requirements

Exam attendance & class project participation is **mandatory** grades are NOT reweighted if missed (see below).

Class group projects	-	25%
Mid-term exam	-	25%
Final exam	-	50%

**Mid-term exam** – 1 hour duration, taken **in class** on **Mon. 29<sup>th</sup> Oct.** (covering Weeks 1-7 subjects).

**Final exam** – 2 hour duration, covers the entire course and is taken in the December 7<sup>th</sup>-20<sup>th</sup> exam period.

Type of questions on exams: *Multiple choice / True or false / Fill in the blank / Definitions / Short answer questions*

**Class group projects** – five in-class projects worth 5% each spread throughout the course. Specifics of projects to be provided in-class.

A sixth group project is also scheduled (26<sup>th</sup> November) for those students who join after Week 1 and/or for those students who missed a project, and/or those students who wish to improve a previous poor grade.

## Course Policies

### Submission of Assignments

All projects are to be emailed to the instructor ([stringy@mcmaster.ca](mailto:stringy@mcmaster.ca)) by the **end of that week's class**.

### Grades

Grades will be based on the McMaster University grading scale:

MARK	GRADE
90-100	A+
85-90	A
80-84	A-
77-79	B+
73-76	B
70-72	B-
67-69	C+
63-66	C
60-62	C-
57-59	D+
53-56	D
50-52	D-
0-49	F

### Late Assignments

A penalty of **5% per day** will be applied to late assignments (that were not discussed with me at least one day prior to the deadline) for a **maximum of 4 days**, including weekends. After 4 days, assignments will no longer be accepted, and a grade of zero will be assigned.

## **Absences, Missed Work, Illness**

Students who will be absent from class or expect to miss work for any reason should notify me **prior to the class time or deadline**. Extensions may be granted for illness, provided students discuss this with me **at least one day** before the deadline. In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar, “Requests for Relief for Missed Academic Term Work.” If you have any questions about the **MSAF**, please contact the Associate Dean’s office.

[http://academiccalendars.romcmaster.ca/content.php?catoid=11&navoid=1698#Requests\\_for\\_Relief\\_for\\_Missed\\_Academic\\_Term\\_Work](http://academiccalendars.romcmaster.ca/content.php?catoid=11&navoid=1698#Requests_for_Relief_for_Missed_Academic_Term_Work)

An arrangement can be made for a missed mid-term exam to be taken at a later date if the student provides an appropriate note/letter from your Faculty Office or SAS (see below).

**No grade / reweighting policy** - grades will **\*NOT\*** be reweighted, e.g. if an exam is missed, then a make-up exam has to be taken, the grade is not just added to the next requirement

## **Avenue to Learn**

In this course we will be using Avenue to Learn. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

## **University Policies**

### **Academic Integrity Statement**

You are expected to exhibit honesty and use ethical behavior in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behavior can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at [www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity).

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

### **Academic Accommodation of Students with Disabilities**

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-

mail [sas@mcmaster.ca](mailto:sas@mcmaster.ca). For further information, consult McMaster University's Policy for [Academic Accommodation of Students with Disabilities](#).

### **Religious, Indigenous and Spiritual Observances (RISO)**

The University recognizes that, on occasion, the timing of a student's religious, Indigenous, or spiritual observances and that of their academic obligations may conflict. In such cases, the University will provide reasonable academic accommodation for students that is consistent with the Ontario Human Rights Code.

Please review the [RISO information for students in the Faculty of Social Sciences](#) about how to request accommodation.

### **Faculty of Social Sciences E-mail Communication Policy**

Effective September 1, 2010, it is the policy of the Faculty of Social Sciences that all e-mail communication sent from students to instructors (including TAs), and from students to staff, must originate from the student's own McMaster University e-mail account. This policy protects confidentiality and confirms the identity of the student. It is the student's responsibility to ensure that communication is sent to the university from a McMaster account. If an instructor becomes aware that a communication has come from an alternate address, the instructor may not reply at his or her discretion.

### **Privacy Protection**

In accordance with regulations set out by the Freedom of Information and Privacy Protection Act, the University will not allow return of graded materials by placing them in boxes in departmental offices or classrooms so that students may retrieve their papers themselves; tests and assignments must be returned directly to the student. Similarly, grades for assignments for courses may only be posted using the last 5 digits of the student number as the identifying data. The following possibilities exist for return of graded materials:

1. Direct return of materials to students in class;
2. Return of materials to students during office hours;
3. Students attach a stamped, self-addressed envelope with assignments for return by mail;
4. Submit/grade/return papers electronically.

Arrangements for the return of assignments from the options above will be finalized during the first class.

### **Course Modification**

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check his/her McMaster email and course websites weekly during the term and to note any changes.